BIT

2nd Semester **May, 2010**

Course /Title No: Digital Electronic (BIT-201)

Time Allowed: 2 ½ Hours **Maximum Marks: 80**

Min Pass Marks: 32

Note: Attempt all questions from Section A and B and only two questions from Section. C

Section: A (Very short answer type questions to be answered in about 20 words) (Marks:8x2 =16)

1. i) Solve in binary
$(10101.110)_2 - (1.102)_2 \times (10\text{-}01)_2$

ii) Differentiate between positive and negative logic

iii) What is the difference between sum term and max term

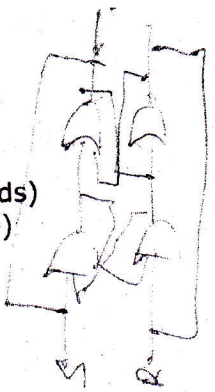
iv) Define a multiplexer.

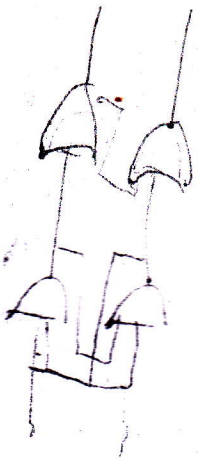
v) Draw the circuit for an asynchronous mod-4 down-counter

vi) What is difference between edge triggering and level triggering?

vii) Draw the circuit for a dynamic MDS RAM cell.

viii) How many words can be stored in a 16Kx10 memory unit?





Section: B *(Short answer type questions to be answered in about 250 words)* (Marks: 4x8 =32)

2. Draw the circuit for a 2-imput DTL gate and explain its working.
3. Minimize the following Boolean expression using K-map
$f(a,b,c,d) = \Sigma(0,1,5,8,10,14) + \Sigma d(2,7,11,15)$
4. i) What are advantage of JK-flip flop over SR-slip flop
ii) Show how to covert a JK-flip flop into a D-flip flop
5. Describe the application of ROM as a code converter.

Section: C (Long answer type question to be answered in about 500 words) Marks: (2x16=32)

6. i) Describe BJT as a switch
ii) Implement AND, OR, NOT and XOR gates using NAND gates alone.
7. i) Discuss the working of a 3-8 line decoder
ii) Implement a full adder with a 3-8 line decoder .
8. Discuss the design of mod -13 synchronous counter using T-flip flops and show output states and wave forms for each flip flop.
9. i) Discuss relative merits and demerits of a dynamic RAM cell over a static RAM cell .
ii) Draw the circuit for a bipolar RAM cell and explain its operation.

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